

CLAIMS

1. A device comprising:
a conduit for insertion into a living body, and through which another device passes, the conduit having inner and outer coaxial layers bonded together such that the
5 outer layer surrounds the inner layer, wherein the durometer of the inner layer is greater than the durometer of the outer layer.
2. The device of claim 1, wherein the conduit is an introducer sheath.
3. The device of claim 1, wherein the conduit is a catheter.
4. The device of claim 1, wherein the inner layer has means for assisting the
10 diameter of the inner layer to expand.
5. The device of claim 4, wherein the assisting means includes a slit formed longitudinally in the inner layer.
6. The device of claim 4, wherein the assisting means includes a circumferentially overlapping portion.
- 15 7. The device of claim 4, wherein the assisting means includes a hinge portion.
8. The device of claim 7, wherein the hinge is monolithic with the inner layer.
9. The device of claim 8, further comprising a plurality of monolithic hinge portions.
10. The device of claim 7, wherein the assisting means includes reduced and greater thickness portions.
- 20 11. The device of claim 10, further comprising a plurality of reduced and greater thickness portions.
12. The device of claim 4, wherein the assisting means includes one or more geometric formations that aid in expansion.

13. The device of claim 1, wherein the inner layer has a durometer in a range of 60-80 on the D scale.

14. The device of claim 13, wherein the outer layer has a durometer in a range of 20-70 on the A scale.

5 15. The device of claim 1, wherein the outer layer has a durometer in a range of 20-70 on the A scale.

16. The device of claim 1, further comprising a medical device for insertion through the conduit, the medical device having a portion with an outer diameter greater than the inner diameter of the inner layer, the conduit expanding temporarily and radially as the
10 medical device is passed through.

17. The device of claim 16, wherein the medical device is selected from the group consisting of a stent, blood clot filter, or occluder.

18. The device of claim 1, further comprising a medical device for passing through the conduit,

15 the medical device being foldable in a first manner for delivery through the conduit and in a second manner different from the first manner for retrieval,

the cross-section of the device as folded in the second manner being greater than the cross-section of the device as folded in the first manner, the device as folded in the first manner having an outer diameter less than the inner diameter of the conduit, the
20 device as folded in the second manner having an outer diameter greater than the inner diameter of the conduit, the conduit not expanding as the device is delivered and expanding temporarily and radially as the medical device is retrieved.

19. A device comprising a conduit for insertion into a living body, and through which another device passes, the conduit having inner and outer coaxial layers such that the
25 outer layer surrounds the inner layer, wherein the elasticity of the material used to form the outer layer is greater than the elasticity of the material to form the inner layer, the

inner layer having a geometric formation for assisting the radial expansion of the inner layer.

20. The device of claim 19, wherein the conduit is an introducer sheath.

21. The device of claim 19, wherein the conduit is a catheter.

5 22. The device of claim 19, wherein the geometric formation includes one or more of the following: a slit formed longitudinally in the inner layer, a circumferentially overlapping portion, a hinge portion, a hinge, a monolithic hinge, a plurality of hinges, a reduced and greater thickness portion, a plurality of reduced and greater thickness portions.

10 23. The device of claim 19, further comprising a medical device for insertion through the conduit, the medical device having a portion with an outer diameter greater than the inner diameter of the inner layer, the conduit expanding temporarily and radially as the medical device is passed through.

15 24. The device of claim 23, wherein the medical device is selected from the group consisting of a stent, blood clot filter, or occluder.

25. The device of claim 19, further comprising a medical device for passing through the conduit,

the medical device being foldable in a first manner for delivery through the conduit and in a second manner different from the first manner for retrieval,

20 the cross-section of the device as folded in the second manner being greater than the cross-section of the device as folded in the first manner, the device as folded in the first manner having an outer diameter less than the inner diameter of the conduit, the device as folded in the second manner having an outer diameter greater than the inner diameter of the conduit, the conduit not expanding as the device is delivered and
25 expanding temporarily and radially as the medical device is retrieved.

26. A method comprising:

forming one of an introducer sheath or catheter through which a medical device is passed with inner and outer coaxial layers bonded together such that the outer layer surrounds the inner layer, wherein the elasticity of the inner layer is greater than the elasticity of the outer layer.

5 27. The method of claim 26, wherein the layers are bonded together through co-extrusion.

28. The method of claim 26, wherein the layers are bonded together through dipping.

29. The method of claim 26, further comprising forming the inner layer with means for allowing the diameter of the inner layer to expand.

10 30. The method of claim 26, wherein the forming includes forming an introducer sheath.

31. The method of claim 26, wherein the forming includes forming a catheter.

32. A method comprising:

15 providing a medical device through a conduit in a living body, the conduit having inner and outer coaxial layers bonded together such that the outer layer surrounds the inner layer, the elasticity of the inner layer being greater than the elasticity of the outer layer, the conduit temporarily expanding in the radial direction as the device passes through.

20 33. The method of claim 32, wherein the medical device has an outer diameter greater than the inner diameter of the inner layer.

34. The method of claim 33, wherein the outer diameter of the device is greater when it is delivered.

35. The method of claim 33, wherein the outer diameter of the device is greater when it is retrieved, but not when it is delivered.

36. The device of claim 32, wherein the medical device is selected from the group consisting of a stent, blood clot filter, or occluder.

37. The method of claim 32, wherein the inner layer has means for assisting the inner layer to expand radially.

5 38. A device comprising:

a conduit for insertion into a living body, and through which another device passes, the conduit having first and second types of sections in a circumferential direction, wherein the elasticity of one type of section is greater than the elasticity of the other type of section, the different elastic sections allowing the conduit to expand
10 temporarily in the radial direction.

39. The device of claim 38, further comprising a medical device for insertion through the conduit, the medical device having a portion with an outer diameter greater than the inner diameter of the inner layer, the conduit expanding temporarily and radially as the medical device is passed through.

15 40. The device of claim 39, wherein the medical device is selected from the group consisting of a stent, blood clot filter, or occluder.

41. The device of claim 38, further comprising a medical device for passing through the conduit,

the medical device being foldable in a first manner for delivery through the
20 conduit and in a second manner different from the first manner for retrieval,

the cross-section of the device as folded in the second manner being greater than the cross-section of the device as folded in the first manner, the device as folded in the first manner having an outer diameter less than the inner diameter of the conduit, the device as folded in the second manner having an outer diameter greater than the inner
25 diameter of the conduit, the conduit not expanding as the device is delivered and expanding temporarily and radially as the medical device is retrieved.

42. The device of claim 38, wherein the conduit has a substantially uniform wall thickness.